

**(19) World Intellectual Property Organization  
International Bureau**



**(43) International Publication Date  
29 January 2004 (29.01.2004)**

PCT

(10) International Publication Number  
**WO 2004/009583 A2**

**(51) International Patent Classification<sup>7</sup>:** C07D 401/00

(81) **Designated States (national):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

**(21) International Application Number:** PCT/US2003/022419

**(84) Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(22) International Filing Date: 15 July 2003 (15.07.2003)

**(25) Filing Language:** English

**(30) Priority Data:** 60/397,459 19 July 2002 (19.07.2002) US

(71) **Applicants and**  
(72) **Inventors: GARST, Michael, E.** [US/US]; 2627 Raqueta Drive, Newport Beach, CA 92660 (US). **SACHS, George** [US/US]; 17986 Boris Drive, Encino, CA 91316 (US). **SHIN, Jai, Moo** [US/US]; 18833 Nau Avenue, Northridge, CA 91326 (US).

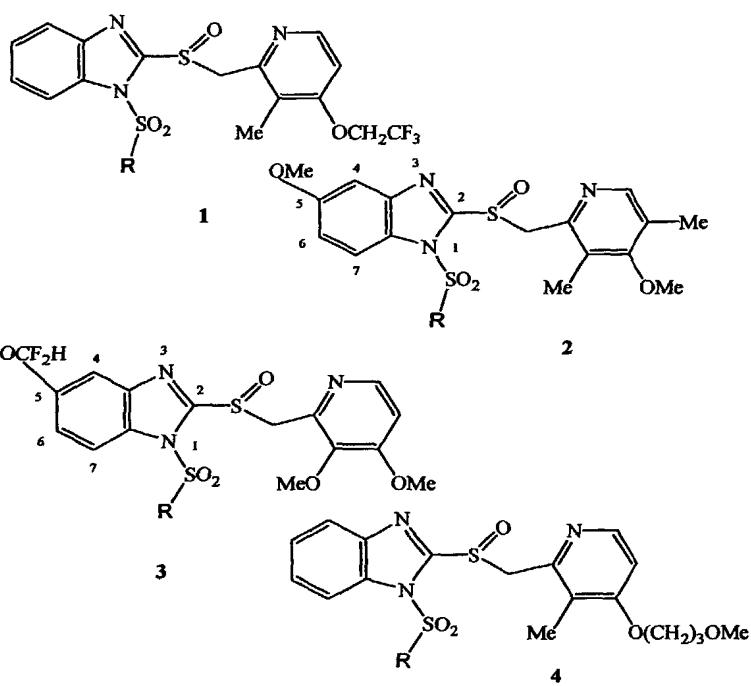
(74) **Agent: SZEKERES, Gabor, L.**; 8141 East Kaiser Boulevard, Suite 112, Anaheim Hills, CA 92808 (US).

### Published:

— without international search report and to be republished upon receipt of that report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**(54) Title: PRODRUGS OF PROTON PUMP INHIBITORS**



**(57) Abstract:** Prodrugs of proton pump inhibitors of Formulas 1 through 4, (I-IV), where the symbols are as defined in the specification, and the R group includes at least one acidic group or its pharmaceutically acceptable salt, have improved aqueous solubility and bioavailability.